

FIGURE 1A

CTCGAGGACAGTGACCTGGGAGTGAGTACAAGGTGAGGCCACCACTCAGGGT
GCCAGCTCCAAGCGGGTCACAGGGACGAGGGCTGCAGGCCATCAGGAGGCCCT
GCACACACATCTGGGACACGCGCCCCCGAGGGCCAGTTCACCTCAGTGCAGCCT
CATTCTCCTGCACAAAAGCGCCCCATCCTTCTTCACAAGGCTTCGTGGAAG
CAGAGGCGTCGATGCCAGTACCCCTCCCTTCCCAGGCAACGGACCCCAA
GTTTGCTGACTGGGACCAAGCCACGCATGCGTCAAGAGTGAGAGTCCGG
GACCTAGGCAGGGGCCCTGGGTTGGGCTGAGAGAGAAGAGAACCTCCCCC
AGCACTCGGTGTGCATCGGTAGTGAAGGAGCCTCACCTGACCCCCGCTGTTGC
TCAATCGACTTCCAAGAACAGAGAGAAAAGGAAACTTCCAGGGCGGCCGG
GCCCTCTGGGGTTCCCACCCATTAGCTGAAAGCACTGAGGCAGAGCTC
CCCCTACCCAGGCTCCACTGCCCGCACAGAAATAACAACCACGGTTACTGAT
CATCTGGAGCTGTCCAGGAATT

09563247 - 092504

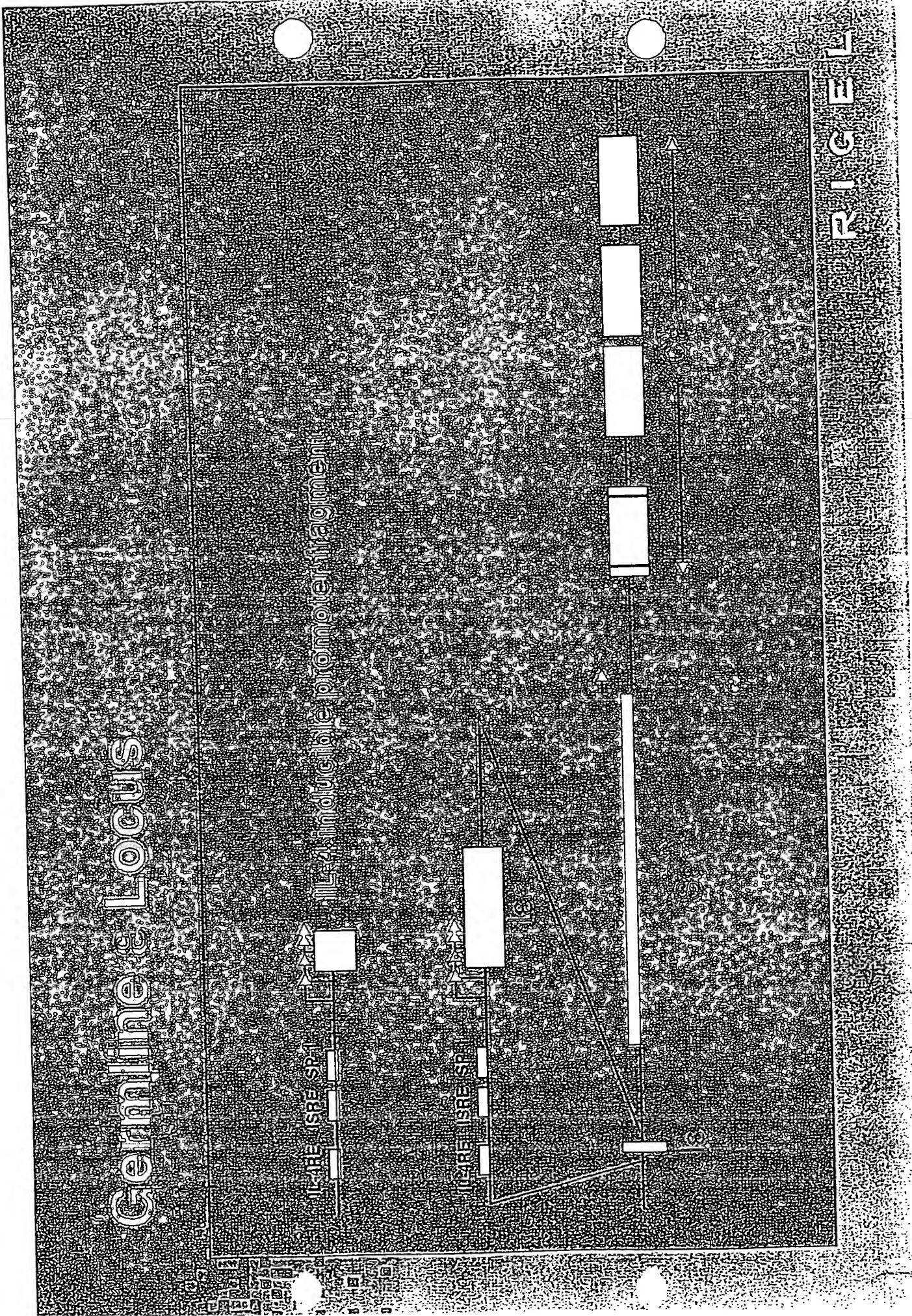
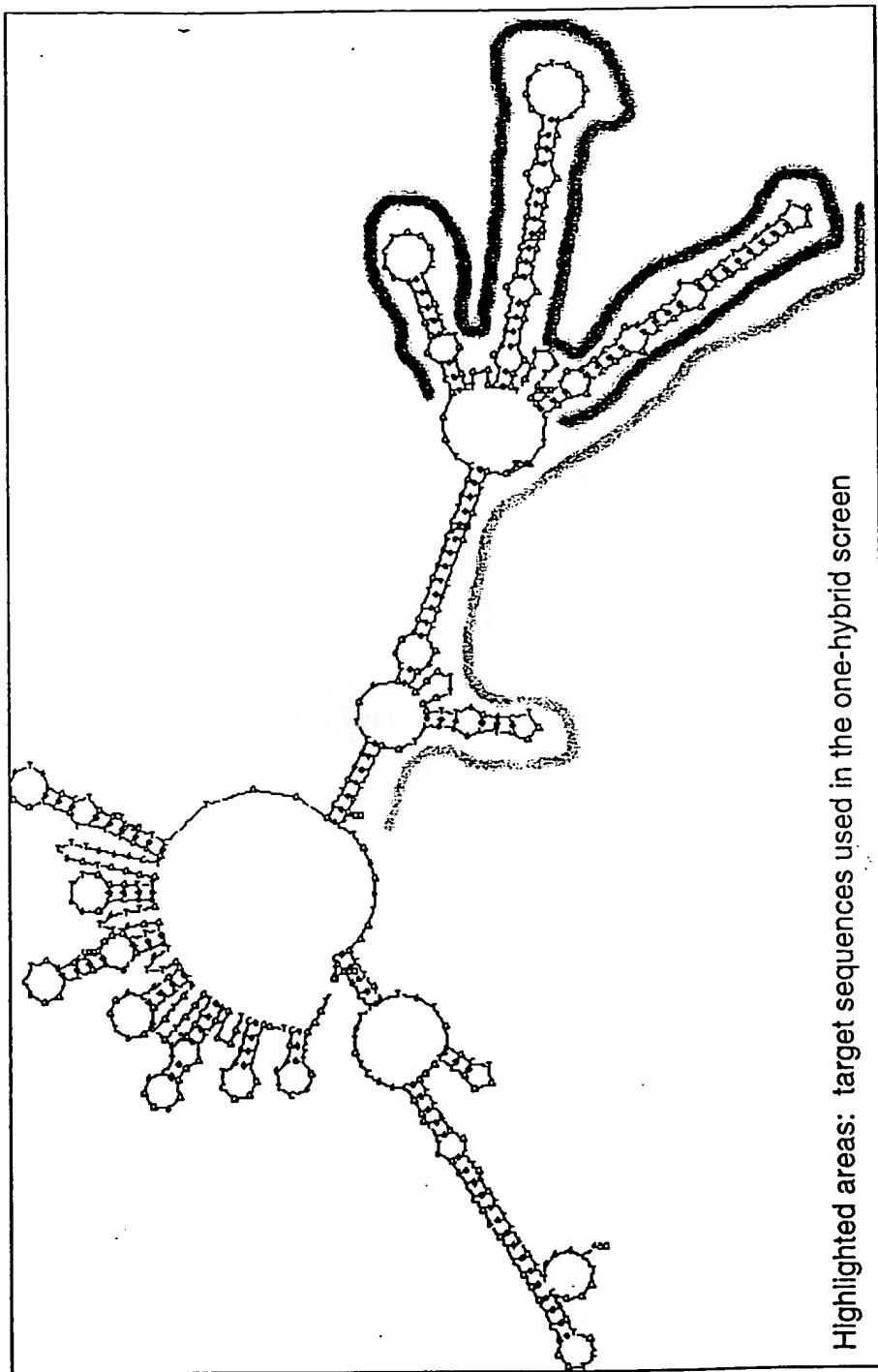


FIGURE 1B

Low energy DNA folding of the S_c region

FIG 2A



Highlighted areas: target sequences used in the one-hybrid screen

FIGURE 2B

1 GCTGGGCTAA ACTGGGCTAG CCTGAGCTGG GCTGAACTGG GCTGCTGGGC
51 TGGACTGGGT AAGCTGGGCT GAGCTGGGTT GGGTGGAAAT GGGCTGAGCT
101 GAGCTAGGCT AAACTGGGTT TGGCTGGGCT GGGCTGGGCT GGG

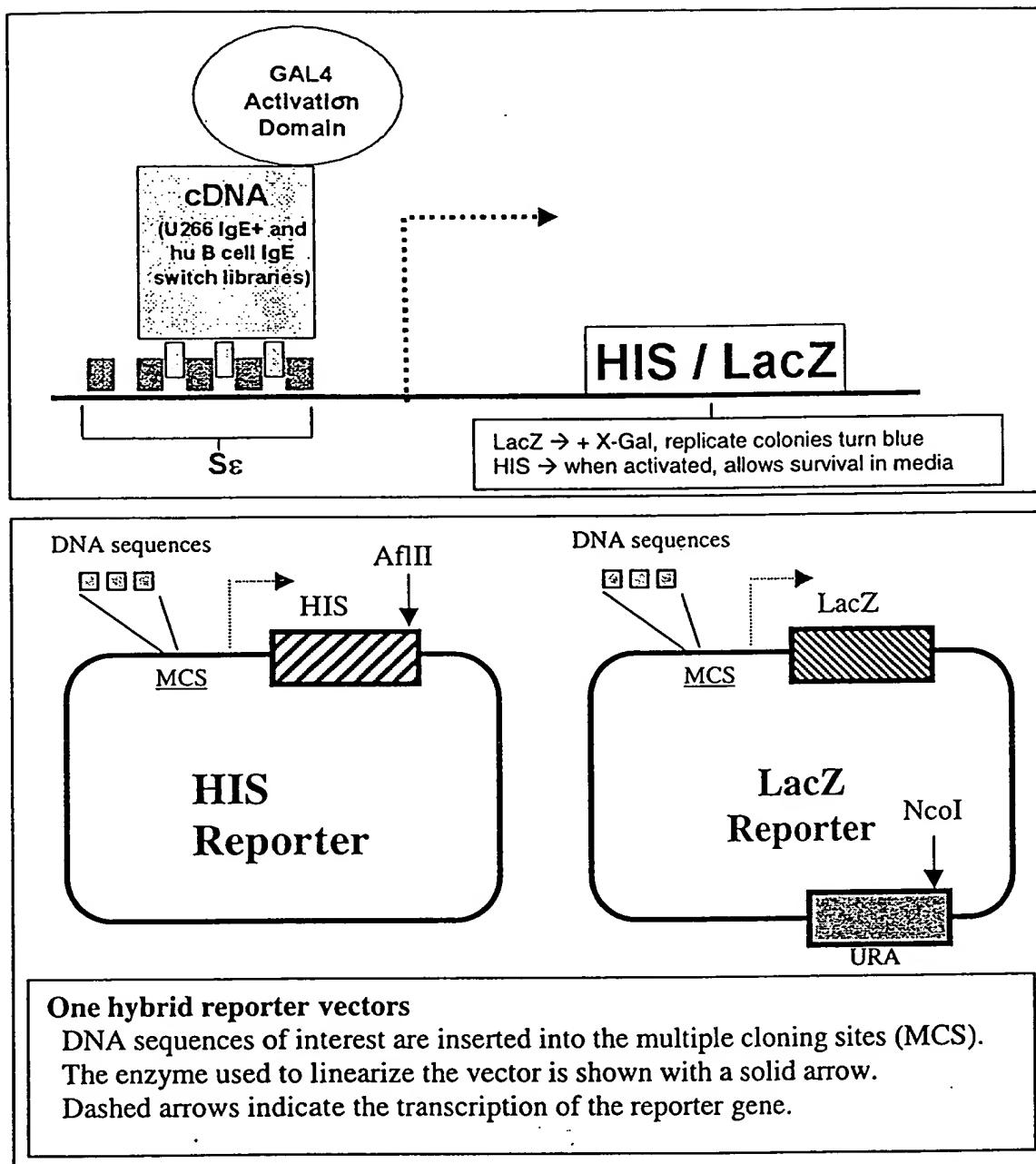
095622427-095601
FIGURE 2C

1 GGTTTGGCTG GGCTGGGCTG GGCTGGGCTG GGTCAGCTG AGCGGGTTGG
51 GTTAGACTGG GTCAAACTGG TTCAGC

FIG 3

Appendix F

Yeast One-Hybrid Screening

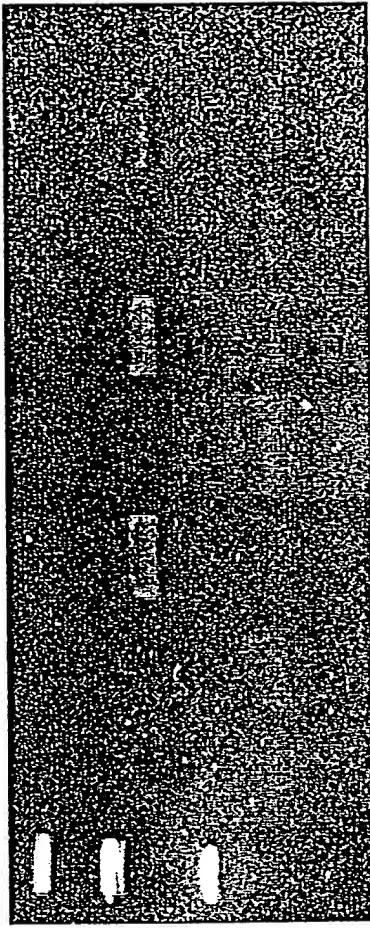


IL-4 Induction of Germline ϵ mRNA in the IgM+ B cell lines: CA-46, MC-116 and DND39

Cells were incubated for 48 hrs in 300 U/ml of h-IL-4. RT-PCR was performed using primers specific for the germline ϵ exon and the 5'-end of the ϵ CH1 exon (predicted size ~ 200 bp).

246 bp
123 bp

DND39 + IL-4
DND39 - IL-4
MC-116 + IL-4
MC-116 - IL-4
CA-46 + IL-4
CA-46 - IL-4
Neg cont.



Approaches to generate germline ε promoter knock-in reporter cell lines

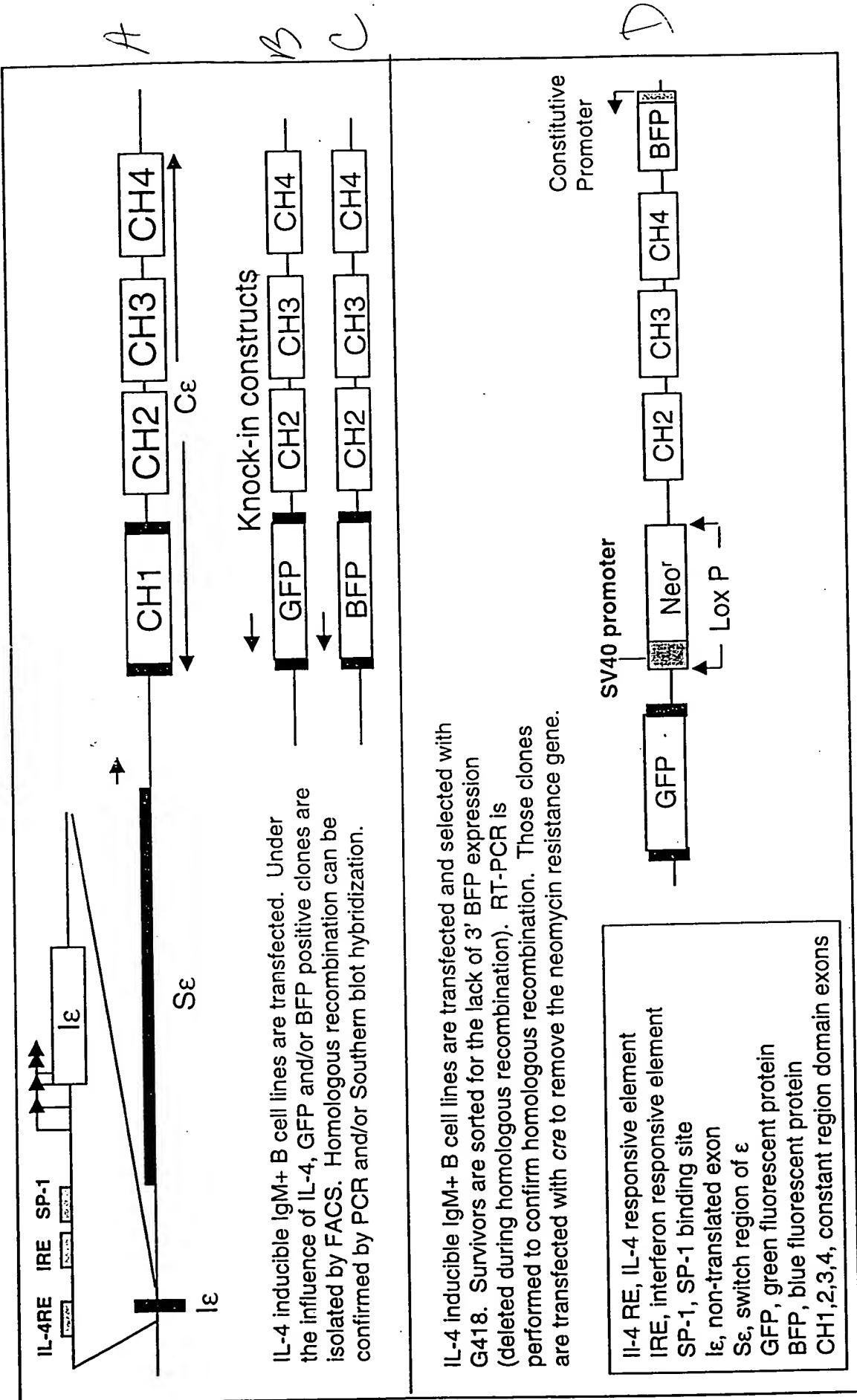
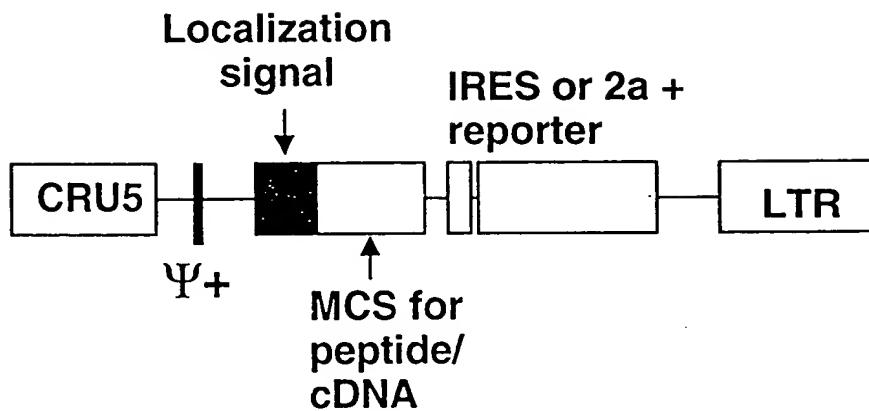


FIG 6

Appendix I

Rigel Base Vector



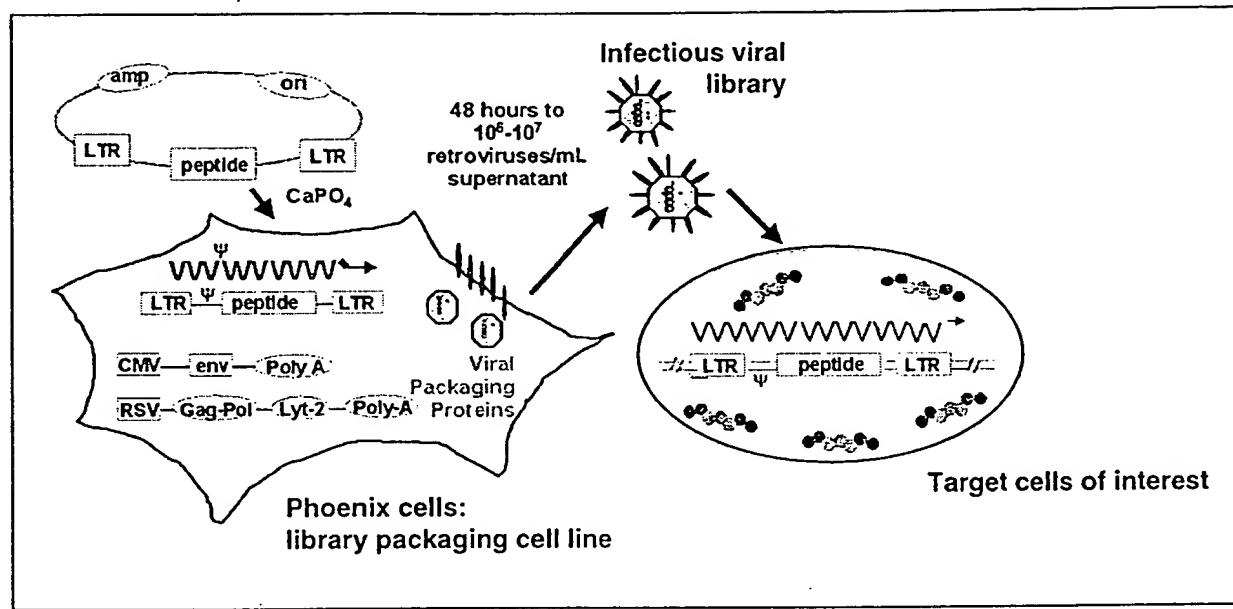
All components are cassetted for flexibility

CRU5, modified LTR
LTR, long terminal repeat
 $\Psi+$, packaging signal
Localization signal: nuclear, cell membrane, granular
MCS, multiple cloning site
IRES, internal ribosome entry site
2a, self-cleaving peptide

FIG 7

Appendix H

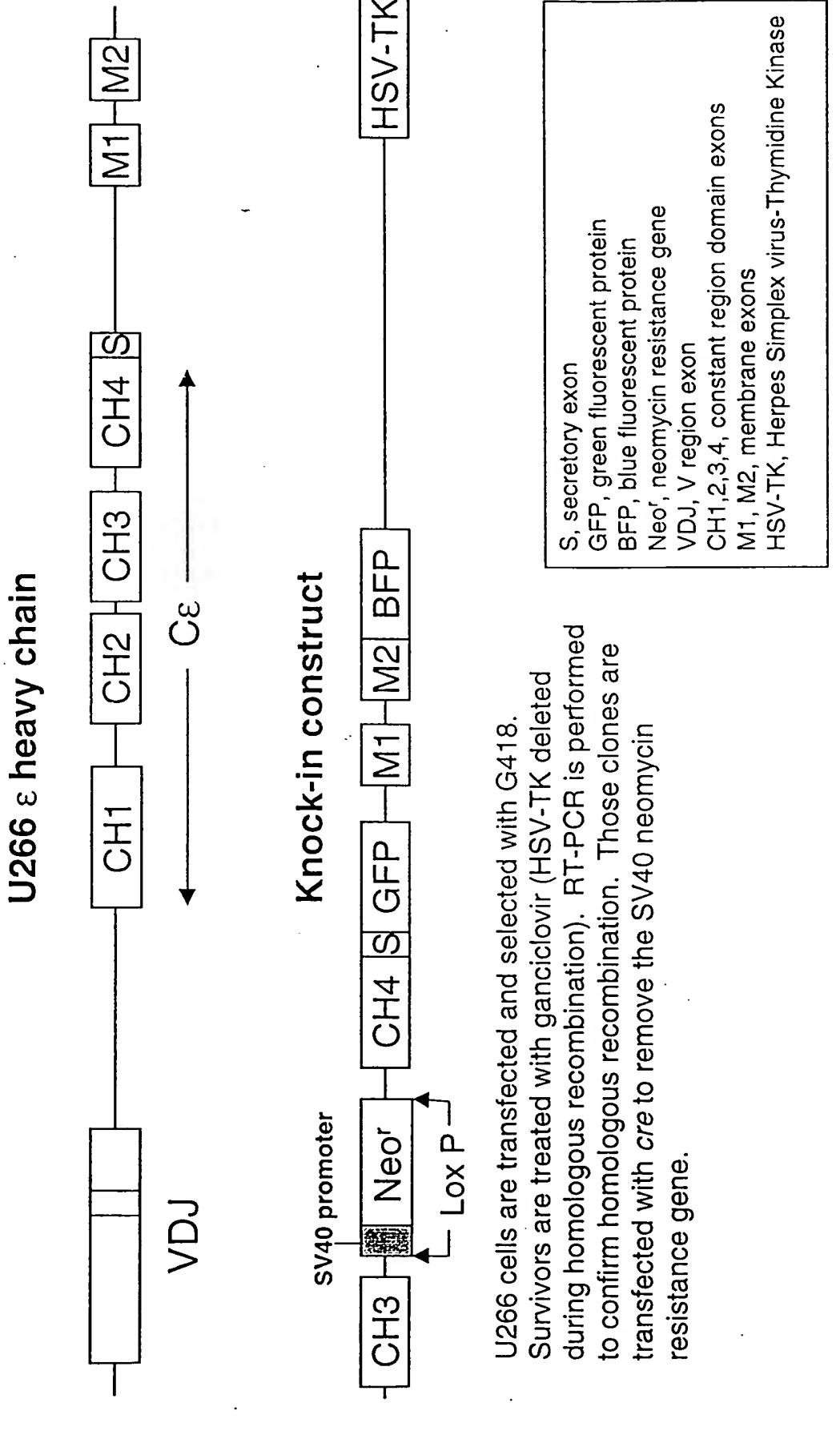
Protocol for Transfection of Phoenix Cells and Infection of Nonadherent Target Cells



F16 8

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ϵ heavy chain GFP/BFP knock-in cell line

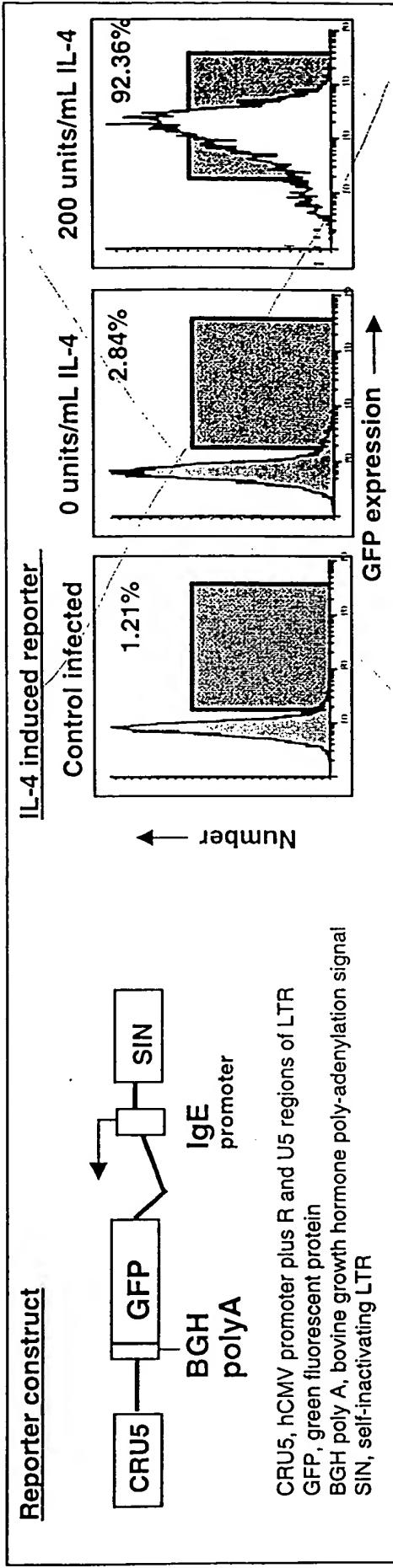


U266 cells are transfected and selected with G418. Survivors are treated with ganciclovir (HSV-TK deleted during homologous recombination). RT-PCR is performed to confirm homologous recombination. Those clones are transfected with *cre* to remove the SV40 neomycin resistance gene.

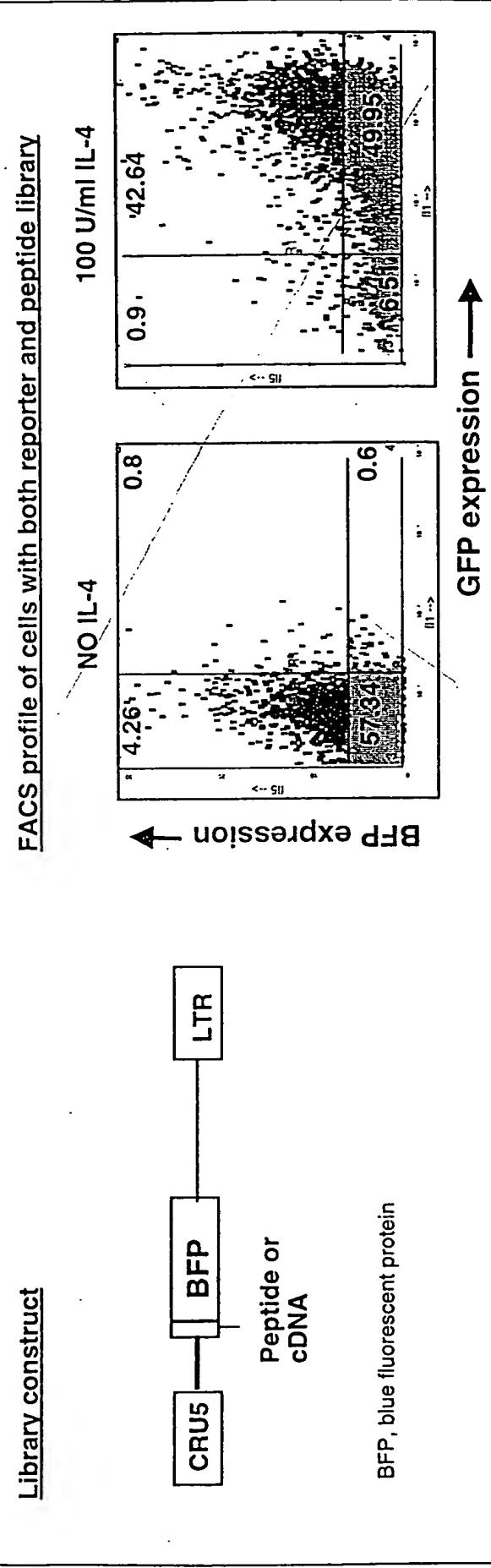
Appendix D

Appendix C

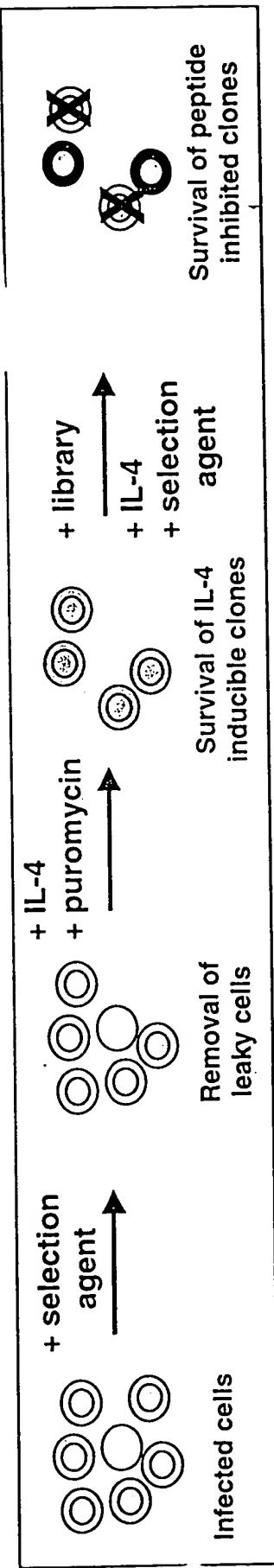
IL-4 Inducible ϵ Promoter Reporter Cell Line



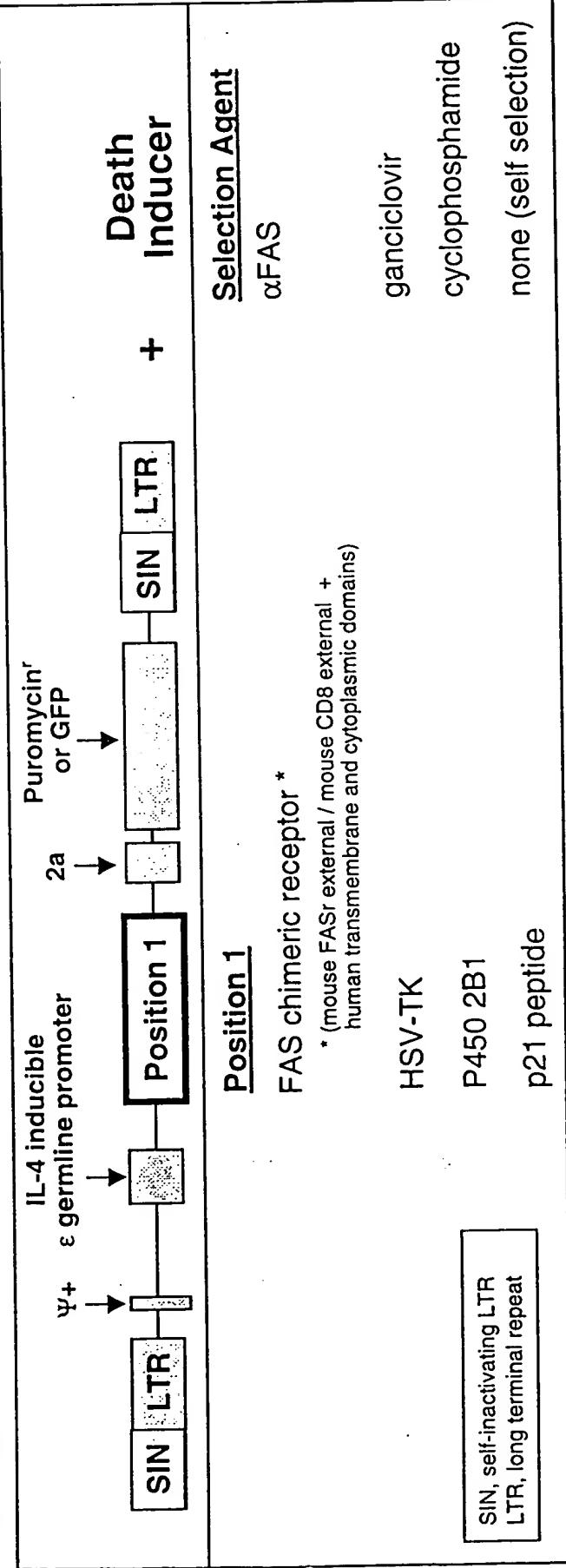
Reporter Line Infected with BFP Construct



Screen for Peptide Inhibitors of the Germline ϵ Promoter



Survival Construct



Appendix D

All components are cassetted for flexibility

FIGURE 11A-1

1-845 CMV promoter/R/U5 5' LTR
1322 GAG ATG-ATC mutation
850-2100 extended ψ region
2146-2173 two BstX1 peptide cloning sites
2205-2723 ECMV IRES (cloned as EcoR1/Msc1 fragment from
pCITE-4a [Novagen])
2746-3465 GFP coding region
3522-4115 3' LTR
4122-6210 pGEM backbone (pUC origin, ampR)

ATCACGAGGCCCTTCGTCTCAAGAACAGCTTGCTCTAGGAGTTCTAATACATCC
CAAACCTAAATATATAAAGCATTTGACTGTTCTATGCCCTAGTTATTAATAGTAATCAA
TTACGGGGTCAATTAGTTCATAGCCCATAATGGAGTTCCCGCTTACATAACTACGGTAA
ATGGCCCGCCTGGCTGACCGCCAACGACCCCCGCCATTGACGTCAATAATGACGTATG
TTCCCATAGTAACGCCAATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGT
AAACTGCCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTACGCCCTATTGACG
TCAATGACGGTAAATGCCCGCCTGGCATTATGCCAGTACATGACCTTATGGACTTC
CTACTTGGCAGTACATCTACGTATTAGTCATCGCTATTACCATGGTATGCCGTTTGGC
AGTACATCAATGGCGTGGATAGCGGTTGACTCACGGGATTCCAAAGTCTCCACCCCA
TTGACGTCAATGGGAGTTGTTGGCACCAAAATCAACGGGACTTCCAAATGTCGA
ACAACCTCCGCCATTGACGCAAATGGCGGTAGGCATGTACGGTGGGAGGTCTATATAA
GCAGAGCTCAATAAAAGGCCACAACCCCTCACTCGGGGCCAGTCCCTCGATTGACT
GAGTCGCCCGGGTACCCGTATCCAATAACCCCTTTGCAGTTGCATCCGACTTGTGGT
CTCGCTGTTCCCTGGGAGGGTCTCCTCTGAGTGAATGACTACCCGTCAAGGGGGTCTT
CATTTGGGGCTCGTCCGGATCGGGAGACCCCTGCCAGGGACCACGACCCACCC
GGAGGTAAGCTGGCCAGCAACTATCTGTTCTGCGATTGTCTAGTGTCTATGACTGA
TTTATGCGCTGCGTCGGTACTAGTTAGCTAACTAGCTCTGTATCTGGCGGACCGTGG
TGGAACTGACCGAGTTCGGAACACCCGGCGCAACCCCTGGGAGACGTCCAGGGACTTCGG
GGCCGTTTGTGGCCCGACCTGAGTCAAAAATCCGATGTTGGACTCTTGGT
CACCCCCCTTAGAGGGAGGATATGTGGTTCTGGTAGGAGACGAGAACCTAAACAGTCC
CGCCTCCGTCTGAATTGGCTTCTGACTGGGACCGAAGCCGCGCGGTCTTGCT
GCTGCAGCATCGTTCTGTTCTGACTGTGTTCTGACTGTGTTCTGTATTGCTGAAAATA
TCGGCCCGGGCAGACTGTTACCAACTCCCTTAAGTTGACCTTAGGTCACTGGAAAGATG
TCGAGCGGATCGCTACAACCAGTCGGTAGATGTCAAGAAAGAGACGTTGGTTACCTCT
GCTCTGCAGAATGGCAACCTTAACGTCGGATGGCCGCGAGACGGCACCTTAACCGAG
ACCTCATCACCCAGGTTAAGATCAAGGTCTTTCACCTGGCCCGCATGGACACCCAGACC
AGGTCCCCTACATCGTACCTGGGAAGCCTTGGCTTTGACCCCCCTCCCTGGGTCAAGC
CCTTGTACACCCCTAACGCCTCCGCTCTCCCTCATCCGCCCGTCTCTCCCCCTTG
AACCTCCTCGTCGACCCCGCCTCGATCTCCCTTATCCAGCCCTCACTCCTCTTAG
GCGCCCCCATATGCCATATGAGATCTTATATGGGGCACCCCCGCCCTGTAAACTCC
CTGACCCCTGACATGACAAGAGTTACTAACAGCCCTCTCCAAGCTCACTTACAGGTC
TCTACTTAGTCCAGCACGAAGTCTGGAGACCTCTGGCGGAGCCTACCAAGAACAACTGG
ACCGACCGGTGGTACCTCACCCCTTACCGAGTCGGCAGCACAGTGTGGTCCGCCGACACC
AGACTAAGAACCTAGAACCTCGCTGGAAAGGACCTTACACAGTCCTGCTGACCACCCCA
CCGCCCTCAAAGTAGACGGCATCGCGCTGGATACACGCCGCCACGTGAAGGCTGCCGA
CCCCGGGGTGGACCATCCTCTAGACTGCCGGATCTGAGGGATCCACCAACCACCATGGACCC
CCATTAAATTGGAATTCTGCAGCCCCGGGGATCCACTAGTTCTAGAGCGAATTAAATTCC

FIGURE 11A-2

GGTTATTTCCACCATATTGCCGTCTTGGCAATGTGAGGGCCGGAAACCTGGCCCTG
TCTTCTTGACGAGCATTCTAGGGTCTTCCCTCTGCCAAAGGAATGCAAGGTCTGT
TGAATGTCGTGAAGGAAGCAGTCCTCTGGAAAGCTTCTGAAGACAAACAAACGTCTGTAG
CGACCCCTTGCAAGGCAGCGAACCCCCCACCTGGCGACAGGTGCCTCTGCGGCAAAGC
CACGTGTATAAGATAACACCTGCAAAGGCGGACAACCCCAGTGCCACGTTGTGAGTTGGA
TAGTTGTGAAAGAGTCAAATGGCTCTCTCAAGCGTATTCAACAAGGGGCTGAAGGATG
CCCAGAAGGTACCCATTGTATGGATCTGATCTGGGCTCGGTGACATGCTTACAT
GTGTTAGTCGAGGTTAAAAAACGTCTAGGCCCGAACACGGGACGTGGTTTCCT
TTGAAAACACGATGATAATATGGGGATCCACCGTCGCCACCATGGTGAGCAAGGGCG
AGGAGCTGTCACCGGGTGGTGCCTCGGTGAGCTGGACGGCACGTAACGGCC
ACAAGTTCAGCGTGTCCGGCGAGGGCGAGGGCGATGCCACCTACGGCAAGCTGACCTGA
AGTTCATCTGCACCACCGCAAGCTGCCGTGCCCTGGCCCACCCCTGTGACCACCCCTGA
CCTACGGCGTGCAGTCTCAGCCGCTACCCCGACCACATGAAGCAGCACGACTTCTCA
AGTCGCCATGCCGAAGGCTACGTCCAGGAGCGCACCATCTTCAAGGACGACGGCA
ACTACAAGACCCCGCGAGGTGAAGTTCGAGGGCGACACCCCTGGTAACCGCATCGAGC
TGAAGGGCATCGACTCAAGGAGGACGCAACATCCTGGGGCACAGCTGGAGTACAAC
ACAACAGCCACAACGTCTATATCATGGCGACAAGCAGAAGAACGGCATCAAGGTGAAC
TCAAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTGCCGACCACTACCGAGA
ACACCCCCATCGGCAGGGCCCGTGTGCTGCCGACAACCAACTACCTGAGCACCCAGT
CCGCCCTGAGCAAAGACCCCAACGAGAAGCGCAGTACATGGTCTGCTGGAGTTCGTGA
CCGCCGCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGTAAAGGGCCGCTCGACGA
TAAAATAAAAGATTTATTTAGTCTCCAGAAAAAGGGGGAAATGAAAGACCCACCTGTA
GGTTGGCAAGCTAGCTTAAGTAACGCCATTGCAAGGCATGGAAAAATACATAACTGA
GAATAGAGAAGTCAGATCAAGGTAGGAACAGATGGAACAGCTGAATATGGCCAAACA
GGATATCTGTGGTAAGCAGTCCTGCCCGGCTCAGGGCCAAGAACAGATGGAACAGCTG
AATATGGCCAAACAGGATATCTGTGGTAAGCAGTCTGCCCGGCTCAGGGCCAAGAA
CAGATGGTCCCCAGATCGGTCAGCCCTCAGCAGTTCTAGAGAACCATCAGATGTT
CAGGGTCCCCAAGGACCTGAAATGACCTGTGCCATTGAAACTAACCAATCAGTC
CTTCTCGCTCTGTCGCGCTCTGCTCCCCGAGCTCAATAAAAGAGCCCACAACCC
TCACTCGGGCGCCAGTCCTCCGATTGACTGAGTCGCCGGTACCCGTGTATCCAATAA
ACCCCTTGCACTGCATCCGACTTGTGGTCTCGCTGTTCTGGAGGGTCTCCTCTGA
GTGATTGACTACCCGTCAAGCGGGGTCTTCATTCCGACTTGTGGTCTCGCTGCCTGG
GAGGGTCTCTCTGAGTGAATGACTACCCGTCAAGCGGGGTCTCACATGCAGCATGTAT
CAAATAATTGGTTTTCTTAAGTATTACATTAATGGCCATAGTTGCATTAAT
GAATCGGCCAACCGCGGGGAGAGGCAGTTGCGTATTGGCGCTTCCGCTTCGCT
CACTGACTCGCTCGCTCGTCGCTCGCTCGCGAGCGGTATCAGCTCACTAACAGG
GGTAATACGGTTATCCACAGAACAGGGATAACGCAGGAAAGAACATGTGAGCAAAGG
CCAGCAAAGGCCAGGAACCGTAAAAAGGCCGTTGCTGGCTTTCCATAGGCTCCG
CCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCGACAGG
ACTATAAGATAACCAAGGCCTTCCCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGAC
CCTGCCGCTTACCGGATACCTGTCGCCATTCTCCCTCGGAAGCGTGGCGTTCTCA
TAGCTCACGCTGTAGGTATCTCAGTCGGTGTAGGTCGTTCGCTCCAAGCTGGCTGT
GCACGAACCCCGTTCAAGCCGACCGCTCGCCTTATCCGTAACTATCGTCTTGAGTC
CAACCCGGTAAGACACGACTTATGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAG
AGCGAGGTATGTAGGCGGTGCTACAGAGTTCTGAAGTGGTGGCTTAACACTACGGCTACAC
TAGAAGGACAGTATTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGT
TGGTAGCTCTGATCCGCAAACAAACCACCGCTGGTAGCGGTGGTTTTGTTGCAA
GCAGCAGATTACCGCAGAAAAAGGATCTCAAGAACAGATCCTTGTATCTTCTACGGG
GTCTGACGCTCAGTGGAACGAAAACACGTTAAGGGATTGGTCAATGAGATTATCAA
AAGGATCTCACCTAGATCCTTAAATTAAAAATGAAGTTGCGCAAATCAATCTAAAG
TATATATGAGTAAACTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGACACCTATCTC
AGCGATCTGTCTATTGTTCATCCATAGTGCGCTGACTCCCCGTGTTAGATAACTAC
GATAACGGGAGGGCTTACCATCTGGCCCCAGTGTGCAATGATAACCGCAGACCCACGCTC
ACCGGCTCCAGATTATCAGCAATAAACCAAGCCAGCCGGAAAGGGCGAGCGCAGAAGTGG

FIGURE 11A-3

TCCTGCAACTTTATCCGCCTCCATCCAGTCTATTAAATTGTTGCCGGGAAGCTAGAGTAAG
TAGTTGCCAGTTAATAGTTGCGCAACGTTGTCATTGCTACAGGCATCGTGGTGTC
ACGCTCGTCGTTGGTATGGCTTCATTCAAGCTCCGGTTCCCAACGATCAAGGCGAGTTAC
ATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTCGGTCTCGATCGTTGTCAG
AAGTAAGTTGCCCGCAGTGTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTAC
TGTCATGCCATCCGTAAGATGCTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTG
AGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCTGGCGTCAACACGGGATAATACCGC
GCCACATAGCAGAACTTTAAAAGTGTCTCATCATTGGAAAACGTTCTCGGGCGAAAAGT
CTCAAGGATCTTACCGCTGTTGAGATCCAGTTGATGTAACCCACTCGTGCACCCAACG
ATCTTCAGCATCTTTACTTCAACCAGCGTTCTGGGTGAGCAAAAACAGGAAGGCAAAA
TGCCGAAAAAGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTT
TCAATATTATTGAAGCATTATCAGGGTTATTGTCTCATGAGCGGATACATATTGAATG
TATTTAGAAAAATAACAAATAGGGTTCCGCGCACATTTC

FIGURE 11B-1

1-845 CMVpormoter/R/U5 5' LTR
1322 GAG ATG-ATC mutation
850-2100 extended □ region
2151-2865 GFP coding region
2866-2894 GGGSGGG linker
2895-2952 FMDV 2a cleavage sequence
2953-3004 Bstx1/Bstx1/HinD3/Hpa1/Sall/Not1 polylinker
3052-3645 3' LTR
3652-5715 pGEM backbone (pUC origin, ampR)

ATCACGAGGCCCTTCGTCTCAAGAACAGCTTGCTCTAGGAGTTCTAATACATC
CCAAACTCAAATATATAAGCATTGACTTGTCTATGCCCTAGTATTAATAGTAATC
AATTACGGGGTCATTAGTCATAGCCCCATATGGAGTTCCCGCGTTACATAACTACGG
TAAATGGCCCGCCTGGCTGACCGCCCAACGACCCCCGCCATTGACGTCAATAATGACG
TATGTTCCCATAGTAACGCCAATAGGGACTTCCATTGACGTCAATGGGTGGAGTATTT
ACGGTAAACTGCCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTACGCCCTTA
TTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCCAGTACATGACCTTATGG
GACTTCCTACTTGGCAGTACATCTACGTATTAGTCATCGCTATTACCATGGTATGCG
GTTTGGCAGTACATCAATGGCGTGGATAGCGGTTGACTCACGGGATTCCAAGTC
TCCACCCCATTGACGTCAATGGAGTTGTTGGCACCAAAATCAACGGACTTCCA
AAATGTCGAACAACCTCCGCCATTGACGCAAATGGCGGTAGGCATGTACGGTGGGA
GGTCTATATAAGCAGAGCTCAATAAAAGAGCCCACAACCCCTCACTCGGGCGCCAGTC
CTCCGATTGACTGAGTCGCCCGGGTACCCGTGTATCCAATAACCCCTCTGCAGTTGCA
TCCGACTTGTGGTCTCGCTGTTCTGGGAGGGTCTCCTCTGAGTGATTGACTACCCGT
CAGCGGGGGCTTCAATTGGGGGCTCGTCCGGGATCGGGAGACCCCTGCCAGGGACC
ACCGACCCACCACCGGGAGGTAAGCTGCCAGCAACTATCTGTCTGTCCGATTGTC
TAGTGTCTATGACTGATTATGCGCCTGCGTCGGTACTAGTTAGCTAACTAGCTCTGT
ATCTGGCGGACCCGTGGAACTGACGAGTCGGAACACCCGGCGCAACCCCTGGGAG

FIGURE 11B-2

ACGTCCCAGGGACTTCGGGGCGTTTGTGGCCCGACCTGAGTCCAAAATCCCGAT
CGTTTGACTCTTGGTGCACCCCCCTAGAGGAGGGATATGTGGTCTGGTAGGAGA
CGAGAACCTAAAACAGTCCCGCCTCGCTGAATTTGCTTCGGTTGGGACCGAA
GCCGCGCCGCGCTTGTCTGCTGCAGCATCGTCTGTGTTGTCTGTCTGACTGTG
TTCTGTATTGTCTGAAAATACGGCCGGCCAGACTGTTACCACTCCCTTAAGTT
GACCTAGGTCACTGGAAAGATGTCGAGCGGATCGCTCACACCAGTCGGTAGATGTCA
AGAAGAGACGTTGGTTACCTCTGCTCGAGAATGGCCAACCTTAACGTCGGATGG
CCGCGAGACGGCACCTTAACCGAGACCTCATACCCAGGTTAAGATCAAGGTCTTTC
ACCTGGCCCGCATGGACACCCAGACCAGGTCCCCATACATCGTGACCTGGGAAGCCTTGG
CTTTGACCCCCCTCCCTGGGTCAAGCCCTTGTACACCCCTAACGCTCCGCTCCTCTT
CCTCCATCCGCCCGCTCTCCCTTGAAACCTCCTCGTCAACCCGCTCGATCCTC
CCTTATCCAGCCCTCACTCCTCTCTAGGCGCCCCATATGGCCATATGAGATCTTAT
ATGGGGCACCCCCGCCCCTTGTAAACTTCCCTGACCTGACATGACAAGAGTTACTAAC
AGCCCCCTCTCCAAGCTCACTACAGGCTCTACTTAGTCCAGCACGAAGTCTGGAG
ACCTCTGGCGGCAGCCTACCAAGAACAACTGGACCGACCGGTGGTACCTCACCCCTTACC
GAGTCGGCGACACAGTGTGGTCCGCCGACACCAGACTAAGAACCTAGAACCTCGCTGG
AAAGGACCTTACACAGTCCTGCTGACCACCCCCACCGCCCTAAAGTAGACGGCATCGC
AGCTTGGATACACGCCGCCACGTGAAGGCTGCCGACCCCCGGGGTGGACCATCCTCTA
GAATGCCGGATCTCGAGGGATCCACCATGGTGAGCAAGGGCAGGGAGCTGTTACCGGG
GTGGTGCCCATCCTGGTCGAGCTGGACGGCACGTAACGGCCACAAGTTCAGCGTGTG
CGCGAGGGCGAGGGCGATGCCACCTACGGCAAGCTGACCCCTGAAGTTCATCTGCACCA
CCGGCAAGCTGCCGTGCCCTGCCACCCCTCGTACCGACCCCTGAACCTACGGCGTGCAG
TGCTTCAGCCCTACCCGACCACATGAAGCAGCACGACTTCTCAAGGACGACGGCAACTACAAGACCC
CGAAGGCTACGTCCAGGAGCGCACCATCTTCTCAAGGACGACGGCAACTACAAGACCC
GCGCCGAGGTGAAGTTGAGGGCGACACCCCTGGTAACCCGATCGAGCTGAAGGGCATC
GACTTCAAGGAGGACGGCAACATCCTGGGGACAAGCTGGAGTACAACACTACAAGCCA
CAACGTCTATATCATGCCGACAAAGCAGAAGAACGGCATCAAGGTGAACCTCAAGATCC
GCCACAACATCGAGGACGGCAGCGTGCAGCTGCCGACCAACTACCAGCAGAACACCCCC
ATCGGCACGGCCCCGTGCTGCCGACAACCAACTACCTGAGCACCCAGTCCGCCCT
GAGCAAAGACCCCAACGAGAAGCGCGATCACATGGCCTGCTGGAGTTCGTACCGCCG
CCGGGATCACTCTGGCATGGACGAGCTGTACAAGGAATTGGAGGTGGCAGCGGTGGC
GGTCAGCTTTGAATTTGACCTTCTAAACTTGCAGGAGACGTCAGTCCAACCCCTGG
GCCCAACCACCATGGAAGCTCCATTAAATTGGTTAACGTCAGCGGCCGCTCGAC
GATAAAATAAAAGATTTATTTAGTCTCAGAAAAGGGGGAAATGAAAGACCCCACT
GTAGGTTGGCAAGCTAGCTTAAGTAACGCCATTGCAAGGCATGGAAAAATACATAA
CTGAGAATAGAGAAGTTCAGATCAAGGTCAAGGAACAGATGGAACAGCTGAATATGGGCC
AAACAGGATATCTGTGTAAGCAGTTCTGCCCGGCTCAGGGCCAAGAACAGATGGAA
CAGCTGAATATGGGCCAACAGGGATATCTGTGTAAGCAGTTCTGCCCGGCTCAGGG
CCAAGAACAGATGGTCCCCAGATGCGGTCAGCCCTCAGCAGTTCTAGAGAACCATCA
GATGTTCCAGGGTGCCCCAAGGACCTGAAATGACCCCTGTGCTTATTGAACTAACCA
ATCAGTTCGCTCTCGCTTCTGTCGCGCCTCTGCTCCCGAGCTCAATAAAAGAGC
CCACAACCCCTCACTCGGGCGCCAGTCCTCCGATTGACTGAGTCGCCGGGTACCCGT
GTATCCAATAAAACCTCTGCAAGTGCAGTTGCATCCGACTTGTGGTCTCGCTGTTCTGGGAG
GGTCTCCTCTGAGTGATTGACTACCCGTCAAGCGGGGGTCTTCAATTCCGACTTGTGGT
CTCGCTGCCCTGGGAGGGTCTCCTCTGAGTGATTGACTACCCGTCAAGCGGGGGTCTTCA
CATGCAGCATGTATCAAATTAATTGGTTTTCTTAAGTATTACATAAATGGC
CATAGTTGCATTAATGAATCGGCCAACCGCGGGGAGAGGCAGGGTTGCGTATTGGCGCT

FIGURE 11B-3

CTTCGGCTTCGCTCACTGACTCGCTCGCTCGGCTGGCTGGCGAGCGGTA
TCAGCTCACTCAAAGCGGTAATACGGTTATCCACAGAATCAGGGATAACGCAGGAAA
GAACATGTGAGCAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGG
CGTTTCCATAGGCTCCGCCCGCTGACGAGCATCACAAAATCGACGCTCAAGTCAG
AGGTGGCGAAACCGACAGGACTATAAGATACCAGGCGTTCCCGTGGAAAGCTCCCT
CGTGCCTCTCGTGTCCGACCCCTGCCGCTTACCGGATACCTGTCCGCTTCTCCCT
CGGGAAAGCGTGGCGCTTCTCATAGCTACGCTGTAGGTATCTCAGTTGGTAGGTC
GTTCGCTCAAGCTGGCTGTGCACGAACCCCCGTTCAGCCGACCGCTGCGCCTT
ATCCGGTAACTATCGTCTGAGTCCAACCGGTAAGACACGACTTATGCCACTGGCAG
CAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCAGGCTACAGAGTTCTG
AAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTGGTATCTGCCTCTGCT
GAAGCCAGTTACCTCGAAAAAGAGTTGGTAGCTTGTACCGGAAACAAACCACCG
CTGGTAGCGGTTGGTTGGTGTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGATCT
CAAGAAGATCCTTGATCTTCTACGGGCTGACGCTCAGTGGAACGAAAACCTACG
TTAAGGGATTGGTCATGAGATTATCAAAAAGGATCTCACCTAGATCCTTTAAATT
AAAAATGAAGTTGCGCAAATCAATCTAAAGTATATGAGTAAACTTGGTCTGACAGT
TACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTGTTGATCCAT
AGTTGCCCTGACTCCCCGTCGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCC
CCAGTGTGCAATGATACCGCGAGACCCACGCTACCGGCTCCAGATTATCAGCAATA
AACCAAGCCAGCCGGAAGGGCGAGCGCAGAAGTGGCCTGCAACTTATCCGCCTCCAT
CCAGTCTATTAAATTGTTGCCATTGCTACAGGCATCGTGGTCACGCTCGTGTGCAAA
GCAACGTTGTTGCCATTGCTACAGGCATCGTGGTCACGCTCGTGTGCAA
TCATTAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGCAA
AAAAGCGGTTAGCTCCTCGGTCTCGATCGTGTGCAAGAAGTAAGTGGCCAGTGT
TATCAGTGTGTTATGGCAGCACTGCATAATTCTTACTGTCATGCCATCCGTAAGA
TGCTTTCTGTGACTGGTAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGCG
ACCGAGTTGCTCTGCCGGCGTCAACACGGGATAATACCGCGCCACATAGCAGAACTT
TAAAAGTGTGTCATCATTGGAAAACGTTCTCGGGCGAAAACCTCAAGGATCTTACCG
CTGTTGAGATCCAGTTGCTACAGGACTCGTGCACCCACTGATCTCAGCATCTT
TACTTCAACCAGCGTTCTGGGTGAGCAAAACAGGAAGGCAAAATGCCGAAAAAAGG
GAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCTTTCAATATTATTG
AGCATTATCAGGGTTATTGTCTCATGACATTAACCTATAAAAATAGGGT

FIGURE 11C-1

1-845 CMV promoter/R/U5 5' LTR
1322 GAG ATG-ATC mutation
850-2100 extended 5' region
2146-2173 two BstX1 peptide cloning sites
2173-2214 EcoRI/PstI/HpaI/NotI polylinker
2262-2855 3' LTR
2855-4901 pGEM backbone (pUC origin, ampicillin resistance)

ATCACGAGGCCCTTCTGCTCTCAAGAACAGCTTGTCTTAGGAGTTCTAATACATCCAAACTCAAT-
ATATAAAGCATTTGACTTGTCTATGCCCTAGTTATTAAAGTAATCAATTACGGGTCTTACAGCTAG
CCATATATGGAGTCCCGCTACATAACTTACGGTAAATGGCCCGCCTGGCTGACCGCCAAACGACCCCCG
CCCATTGACGTCAATAATGACGTATGTCCCCATAGTAACGCCAATAGGGACTTCCATTGACGTCAATGGG
TGGAGTATTACGGTAAACTGCCACTGGCAGTACATCAAGTGTATCATATGCCAAGTACGGCCCTATT
GACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCCAGTACATGACCTTATGGACTTCCACTTG
GCAGTACATCTACGTATTAGTCATCGTATTACCATGGTATGCCGTTTGGCAGTACATCAATGGCGTG
GATAGGGTTGACTCACGGGATTCCAAGTCTCACCCATTGACGTCAATGGAGTTGGTTGGCAC
CAAATCAACGGGACTTCCAAAATGTCGTAACAACCTCGCCCCATTGACGAAATGGCGGTAGGCATGT
ACGGTGGGAGGTCTATATAAGCAGAGCTCAATAAAAGAGGCCACAACCCCTACTGGGGGCCAGTCCTC
CGATTGACTGAGTCGCCCGGTACCGTGTATCCAATAACCCCTTGTGAGTTGCATCCGACTTGTGGTCT
CGCTGTTCTGGGAGGGTCTCCTCTGAGTGATTGACTACCCGTAGCGGGGGTCTTCAATTGGGGCTC
GTCCGGGATCGGGAGACCCCTGCCAGGGACCACCGACCCACCACGGGAGGTAAGCTGGCCAGCAACTTA
TCTGTGTCGTCCGATTGCTAGTGTCTATGACTGATTATGCCCTGCTCGGTACTAGTTAGCTAACT
AGCTCTGTATCTGGCGACCGTGGAACTGACGAGTTCGGAACACCCGGCCGAAACCCCTGGGAGACGT
CCCAGGGACTCGGGGCCGTTTGTGGCCGACCTGAGTCCAAAATCCGATGTTTGGACTCTTG
GTGCACCCCCCTTAGAGGAGGGATATGTGGTTCTGGTAGGAGACGAGAACCTAAACAGTCCCGCCTCCG
TCTGAATTTCGTTGCCGTTGGGACCGAAGCCGCGCGCGTCTGTCTGCTGAGCATGTTCTGTG
TTGTCTCTGTACTGTGTTCTGTATTGTCTGAAAATCGGCCCCGGCCAGACTGTTACCAACTCCCT
TAAGTTGACCTTAGGTACTGAAAGATGTCGAGCGGATCGCTCACAAACAGTCCGTAGATGTCAAGAAG
AGACGTTGGGTAACCTCTGCTCTGCAAGAATGCCAACCTTAACGTCGGATGCCCGAGACGGCACCTT
TAACCGAGACCTCATACCCAGTTAACATCAAGTCTTTCACCTGGCCGATGGACACCCAGACCAGG
TCCCTACATCGTACCTGGAAAGCCTGGCTTGTACCCCCCTCCCTGGTCAAGCCCTTGTACACCC
AAGCCTCCGCCCTCTCCCATCCGCCGCTCTCCCCCTTGAAACCTCCTGTTGACCCGCCCTCG
ATCCTCCCTTATCCAGCCCTACTCCTCTAGGCGCCCCATATGCCATATGAGATCTTATATGGGG
CACCCCCGCCCTGTAAACTCCCTGACCTGACATGACAAGAGTTACTAACAGCCCTCTCCAAGCT
CACTTACAGGCTCTACTTAGTCAGCACGAAGTCTGGAGACCTCTGGCGCAGCTACCAAGAACAACT
GGACCGACCGGTGGTACCTCACCTTACCGAGTCGGCGACACAGTGTGGGTCCGCCGACACCAAGACTAAGA
ACCTAGAACCTCGTGGAAAGGACCTAACAGTCTGCTGACCACCCCCACGCCCTCAAAGTAGACGGC
ATCGCAGCTGGATACCGCCGCCACGTGAAGGCTGCCGACCCGGGGTGGACATCCTCTAGACTGCC
GGATCTCGAGGGATCCACCAACCATGGACCCCCATTAAATTGAAATTGGGGCCAAAGCTTGTAAACGTCG
ACGGCCGCCGCTGACGATAAAATAAAAGATTATTAGTCTCCAGAAAAGGGGGGAATGAAAGACCC
CACCTGTAGGTTGGCAAGCTAGCTTAAGTAACGCCATTGCAAGGCATGAAAAATACATAACTGAGAA
TAGAGAAGTTCAGATCAAGGTCAAGGAACAGATGGAACAGCTGAATATGGCCAAACAGGATATCTGTGGT
AGCAGTCTGCCCCGGCTCAGGGCCAAGAACAGATGGAACAGCTGAATATGGCCAAACAGGATATCTGT
GGTAAGCAGTCTCTGCCCGCTCAGGGCCAAGAACAGATGTTCTCCAGATGCCGTTCCAGCCCTCAGCAGT
TTCTAGAGAACCATCAGATGTTCCAGGGTGCCTAACAGGACTGAAATGACCTGTGCCATTGGACTA
ACCAATCAGTTGCCCTCTGCCCTCTGTCGCCGCTCTGCTCCCCGAGCTCAATAAAAGAGGCCACAACC
CCTCACTCGGGGCCAGTCTGCCGATGACTGAGTCGCCGGTACCCGTATCCAATAAAACCCCTTGT

FIGURE 11C-2

CAGTTGCATCCGACTTGTGGTCTCGCTGTTCTGGGAGGGTCTCCTGAGTGATTGACTACCCGTCA
GGGGTCTTCATTCGACTTGTGGTCTCGCTGCCTGGGAGGGTCTCCTGAGTGATTGACTACCCGT
CAGCGGGGTCTTCACATGCAGCATGTATCAAATTAATTGGTTTTCTTAAGTATTACATTAAT
GGCCATAGTTGCATTAATGAATCGGCCAACGCGGGGAGAGGGCGTTGCGTATTGGCGCTCTCCGCTT
CCTCGCTCACTGACTCGCTCGCTCGTCGTTGGCTGGCGAGCGGTATCAGCTCACTCAAAGGGGT
ATACGGTTATCCACAGAATCAGGGGATAACGCAAGGAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAG
GAACCGTAAAAGGCCGCGTTGCTGGCGTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATC
GACGCTCAAGTCAGAGGTGGCAGACAGGACTATAAGATAACCAGGCGTTCCCCCTGGAAGCTCC
CTCGTGCCTCTCTGTTCCGACCCCTGCCCTACCGATAACCTGTCCGCCTTCTCCCTCGGAAGCGT
GGCGCTTCTCATAGCTCACGCTGTAGGTATCTCAGTCGGTGTAGTCGTTCGCTCCAAGCTGGCTGTG
TGCACGAACCCCCGTTCAGCCGACCGCTGCCCTATCCGTAACTATCGTCTTGAGTCCAACCCGTA
AGACACGACTTATGCCACTGGCAGCAGCACTGGTAACAGGATTAGCAGAGCGAGGTATGAGGCGGTG
TACAGAGTTCTGAAGTGGTGGCTAACTACGGCTACACTAGAACAGCTATTGGTATCTCGCTCTGC
TGAAGCCAGTTACCTCGAAAAAGAGTTGGTAGCTCTGATCCGCAAACAAACCACCGCTGGTAGCGGT
GGTTTTTTGTTGCAAGCAGATTACGCGAGAAAAAAAGGATCTCAAGAAGATCCTTGATTTTC
TACGGGCTGACGCTCAGTGGAACGAAACTCACGTTAACGGATTGGTATGAGATTATCAAAGGA
TCTTCACCTAGATCCTTTAAATTAAAAATGAAGTTGCGCAAATCAATCTAAAGTATATGAGTAAC
TGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTGTTCATCCAT
AGTTGCCTGACTCCCCGTCGTAGATAACTACCGATAACGGAGGGCTTACCATCTGGCCCCAGTGTGCAA
TGATACCGCGAGACCCACGCTCACCGGCTCCAGATTACGCAATAAACCAAGCCAGCCGGAAGGGCCGAG
CGCAGAAGTGGTCTGCAACTTATCCGCTCCATCCAGTCTATTAAATTGTTGCCGGAAAGCTAGAGTAAG
TAGTTGCCAGTTAATAGTTGCGCAACGTTGCTACAGGCATGTGGTGTACGCTCGT
TTGGTATGGCTCATTAGCTCCGGTCCCAACGATCAAGGCAGTTACATGATCCCCATGTTGCAA
AAAGCGGTTAGCTCCTCGGTCTCCGATCGTTGTCAGAAGTAAGTTGGCGCAGTGTATCACTCATGGT
TATGGCAGCACTGCATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTCTGTGACTGGTGAGTACT
CAACCAAGTCATTCTGAGAATAGTGTATGCGGCCACCGAGTTGCTCTTGCCGGCTCAACACGGGATAAT
ACCGGCCACATAGCAGAACATTAAAGTGTCTCATATTGAAAACGTTCTCGGGCGAAAACCTCTCAAG
GATCTTACCGCTGTTGAGATCCAGTTGATGTAACCCACTCGTCACCCAACTGATCTCAGCATCTTTA
CTTTCACCAGCGTTCTGGGTGAGCAAAACAGGAAGGCAAAATGCCGAAAAAGGAAATAAGGGCGACA
CGGAAATGTTGAATACTCATACTCTTCCTTTCAATATTATTGAAGCATTATCAGGGTTATTGTCTCAT
GACATTAACCTATAAAATAGGCCT

F10 12A

(1) C12ScFas Survival construct

C12ScFas: epsilon-cFas (CD95)-Ires-Hygro-BGH PolyA put into C12s vector backwards so that no leaky transcription happens through the cmv promoter.

atcacgaggcccttcgtcttcaagaacagcttgccttaggagttcctaatacatccaaactcaaataataaagc
attgacttgttctatgcctgttattaaatagaatcaattacgggtcattagttcatagccatataatggagttccg
cggtcataacttacggtaatggccgcgtgacggccaaacgaccccccgcattgacgtcaataatgacgtatg
ttcccatagtaacgcataaggacttccattgacgtcaatgggtggagttacatcgtaaactgcccacttggcagta
catcaagtgtatcatatgcctacttgcgtacatctacgtattatgtcatcgctattaccatgttgcgtttggc
catgaccttatggacttccattgacgtacatctacgtattatgtcatcgctattaccatgttgcgtttggc
agtagatcaatggcgatagcgtttactacgggatttccaagtcgtccacccattgacgtcaatggagtttgc
tttfggacccaaaatcaacggacttccaaaatgtcgtaacaactccggccattgacgaaatggcggtaggcatgt
acggtgaggacttataagcagactcaataaaaagggccacaacccctactcgggcccattccgttgcatttgc
gagtcgcccgggtacccgttacccatggggacttgcgttgcatttgcgttgcgttgcgttgcgttgcgttgc
tccctctgtgttgcatttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
ggaccaccgaccaccggaggtaagctggcagcaacttatctgtgtctgtccgattgtctagtgctatgactga
tttatgcgcgtcgctgtacttagttagtcaactagctctgtatctggggaccctgttgcgttgcgttgcgttgc
caccggcccaaccctggagacgtcccaggacttcggggccgttttgcgttgcgttgcgttgcgttgcgttgc
tcgttttgacttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
cgccctccgtgtatgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
tgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
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gtctgcagaatggccaaaccttacgtcgatggacaccctacccatgttgcgttgcgttgcgttgcgttgc
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ccccccctccgggtcaagccttgtacaccctaagccctccgttccatccgcgttgcgttgcgttgcgttgc
aaccctccgttgcaccctccgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
gagatcttatatggggcaccctccgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
ccaagctacttacaggctctacttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
accgaccgggttacccatccgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
cgctggaaaggacccatccgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
cgcccacgtgaaggctggcaccctgggttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
TGCTATTGTCTCCAACTCCTCCCCCTGCTGTCCTGCCCAACCCACCCCCAGAATAGAATGACACCTACTCAGACAA
TGCGATGCAATTCTCATTATTAGAAAGGACAGTGGGAGTGGCACCTCCAGGGTCAAGGAAGGCACGGGGAGGG
GCAAACAAACAGATGGCTGGCAACTAGAAGGCACAGTCGAGGtCTAGCTGCCAACCTACAGGTGGGTCTTCATTCCC
CCCTTTTCTGGAGACTAAATAAAATCTTTATTTTatcgatagatccggcgttgcgttgcgttgcgttgcgttgc
gacgagtgtcgccgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
gcatccgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
gaaatggccgtcaaccaagctctgtatagatgggtcaagaccatgcggagcatatacgccggagccgcgatcc
caagctccggatgcctccgtcaagtagcgcgtctgtgtccatacaagccaaaccacggcctccagaagaagatgt
gcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
attgttggagccaaatccgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
cctgcgcacggacgcactgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
aaatcacgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
agcgtatccatccatccgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
cctgtcaccggcggagatgtcaataggctcgtaaaatcccaatgtcaagcacttccggaaatcgaggcgc
ggcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
ccctcctacatcgaaagcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
cgatcagaacttctcgacagacgtcgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
cacgtcccggtggggccgttagacgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
atcagatccatccatccatccgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
tttccacaactatccactacaacgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
cccgagaggcacctgtcgccaggtgggggttccgtccgtccgtccgttgcgttgcgttgcgttgcgttgc
ttccAGAGGAACGTGCTTCCCTACGACATTCAACAGACCTTGCAATTCTGGCAGAGGGGAAAGACCCctagactaga
ccaagcttggatttcatgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
tctgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
ccaatccatccatccatccatccatccatccatccatccatccatccatccatccatccatccatccatcc
tgacccatcttcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
tcaacatcgatccatccatccatccatccatccatccatccatccatccatccatccatccatccatcc
cttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgcgttgc
ccaaccggTTCTGGGACTTGTGTTCTGCAGTTGTATTGCTGGTGTGCATGGCTCAAGGGTCCATGTTCACAC
GAGGCGCAGCGAACACAGTGTTCACAGCCAGGAGAACGCACTAGAAGTCTGGTTGCACTTGCACCTGGTATTCTGGG
CAGGGTGCAGTTGTTCCACTTCTAAACCATGCTCTCATCGCAGAGTGTGCATCTCTGCATTATCAGCATAATGG
TCTTGTCATGTACTCCCTCCCTGTGCATGGGCACAGGTTGGTACCCCCATTCACTTGCAGTCCTCAACTTT

F10 12B

TTTTTACCGAGGTTGGCATGGTGACAGCAAAATGGGCCCTCCTGATATAATCCTCTGAGCAGTTTTATCAGTTTCATG
AACCCGCCCTCAGCTTAAACTCTGGAGATGCTATTAGTACCTTGAGTATGAACCTTAACGTGAGCCAGCAAGCA
CCAGAGGCAGGACAGCCAGATCCACACCATgGTGGCTTACCAACAGTACCGGAATGCCAAGCTGGCCCTTAAGA
GCTGTAATTGAACCTGGGAGTGGACACCTGTGGAGAGAAAGGCAAAGTGGATGTCAGTAAGACCAATAGGTGCCTATCAG
AAACGCAAGAGTCTCTGTCTGACAAGCCAGTTCTATTGGTCTCCTAAACCTGTCTGTAACCTGATACTTAC
CTGCCAGTCACGCCAACTTctgcaggaattctggacagctccagatgatcagtaaccgtgggtgttatttct
gtgccggcagtggagccctggtagggggagctctgcctcagtgccttgcgtaaaaaatgggtggaaaccccCaggagg
ccggcccccggggcggaaactcccttctctgttctggaaagtcgattgagcaacagcggggcgggtcagggtgaggctcc
ttcactaccgatgcacaccggagtgctGggggaggttcttcctcaggcccaacCccaggggccctgcctagggtccc
ggactctCactttgacgcacgcgtggcttgcctcggccacaaacttgggtccgcgcggggcggaaagggagag
gttactggcatcgcacgcctctgcttccacaaagcctgtgaagaaaggatggggcgccttgcaggagaatgagg
cgcaactgaggtaactggccctcggggGcgcgtgtccagatgtgtgcaggccctctgatggccgcagccctgcct
ctgtgaccgcgttggagctggcacccctgagttggcctcacCTTGACTCACTCCAGGTCACTGTCCTgcacGCGGCC
GCTCGAcgatAAAATAAAAGATTATTAGTCTCCAGAAAAGGGGGAAATGAAAGACCCACCTGTAGGTTGGCAAg
ctagcTTAAGTAACCCATTGCAAGGCATGGAAAATACATAACTGAGAATAGAGAAGTTCAGATCAAGGTGCGAACAG
ATGGAACAGGAATAAAAGAGCCCACAACCCCTCACTCGGGCGCCAGTCCTCGATTGACTGAGTCGCCGGTACCCG
TGTATCCAATAACCCCTTTGCAGTTGCATCCGACTTGTGGTCTCGCTGTTGGAGGGTCTCCTGAGTGATTGA
CTACCCGTCAGCGGGGGCTTTCAcatgcagCATGTATCAAATTAAATTGGTTTTTCTTAAGTATTACATTAAAT
GGCCATagttcGTAATCATGGCATAGCTTTCTGTGAAATTGTTATCCGCTCACAAATTCCACACAAACATACGAG
CCGGAAAGCATAAAGTGTAAAGCCTGGGTGCTTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCACTGCCGCT
TTCCAGTCGGAAACCTGCGCTGCCAGCTGCATTAATGAATCGGCCACGCGGGGAGAGGCGGTTGCGTATTGGCG
CTCTTCCGCTTCCCTCGCTCACTGACTCGCTGCGCTCGGCGTTGCGGAGCGGTATCAGCTCACTCAAAGGCCG
TAATACGTTATCCACAGAATCAGGGATAACGCAGGAAGAACATGTGAGCAGAAAGGCCAGCAGAAAGGCCAGGAACCGT
AAAAAGGCCGCGTTGCTGGCGTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAATGACGCTCAAGTCAGAG
GTGGCGAAACCCGACAGGACTATAAGATAACCAGGCAGTCCGCTGCGCTCGGCGTGTGCGTCTCTGTTCCGACCC
TGCCGCTTACCGGATACCTGTCGCCCTTCTCCCTCGGAAGCGTGGCGTTCTCATAGCTCACGCTGTAGGTATCTC
AGTCGGGTAGGTGCGCTCCAAGCTGGCTGTGACGAACCCCCCGTTAGCCGACCGCTGCGCCTTATCCGG
TAACATCGTCTTGAGTCCAACCGGTAAGACACGACTTATGCCACTGGCAGCAGCCACTGGTAACAGGATTACCAAGAG
CGAGGTATGTAGGCGGTGCTACAGAGTTCTGAAGTGGTGGCTAACTACGGCTACACTAGAAGGACAGTATTGGTATC
TGCCTCTGCTGAAGCCAGTTACCTCGGAAAAGAGTTGGTAGCTTGTGATCCGGCAAACAAACCCGCTGGTAGCGG
TGGTTTTTTGTTGCAAGCAGCAGATTACCGCAGAAAAAGGATCTCAAGAAGATCCTTGATCTTGTAGCTTCTACGGGGT
CTGACGCTCAGTGGAAACGAAAACACGCTTAAGGGATTGGTCAAGGATCTTGTGAGATTATCAAAAGGATCTCACCTAGATCCTT
TTAAATTAAAAATGAAGTTGCGCAAATCAATCTAAAGTATATATGAGTAAACTGGTCTGACAGTTACCAATGCTTAAT
CAGTGAGGCACCTATCTCAGCGATCTGTCTATTGCTCATCCAGTTGCGCTGACTCCCCGCTGTAGATAACTACGA
TACGGGAGGGCTTACCATCTGGCCCAGTGCCTGCAATGATACCGCAGACCCACGCTCACCGCTCCAGATTATCAGCA
ATAAACCCAGCCAGCCGGAAAGGGCGAGCGCAGAAGTGGTGGCTGCAACTTATCCGCTCCATCCAGTCTATTAAATTGTTG
CCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTGCGCAACCTGTTGCCATTGCTACAGGCATCGTGGTGTAC
GCTCGTCTTGGTATGGCTTCACTCAGCTCCGGTCCCAACGATCAAGGCGAGTTACATGATCCCCATGTTGTGCAA
AAAGCGGTTAGCTCCCTCGGTCTCGATCGTGTGAGAAGTAAGTGGCCAGTGTATCAGTCACTCATGGTTATGGCAGC

FIG 12C

ACTGCATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTCTGTGACTGGT~~Gagtactcaaccaagt~~cattctgag
aatagtgtatgcggcgaccgagttgctttgcggcgtaacacggataataccgcgccacatagcagaactttaaaa
gtgctcatcattggaaaacgttcttcggggcgaaaactctcaaggatcttaccgctgtttagatccagttcgatgtacc
cactcgtgcacccaactgatttcagcatcttactttcaccagcggttctgggtgagaaaaacaggaaggcaaaatg
ccgcaaaaaaggaaataagggcgacacggaaatgttgaataactcatactcttcctttcaatattattgaagcatttat
cagggttattgtctcatgacattaacctataaaaaataggcgt

09952347-092504

FIG 13A

(2) Ahhhh: Survival construct

2.) Ahhhh: epsilon-cFas' (CD8 or mLyt2)-Ires-Hygro-BGHpolyA also in C12s backwards

FO- 13 B

tcaacatcgataaatttattgccactgttcaggattaaagggtggagattcatgagaacctgggtttccttcgtt
ctttctgcattttctgtactcccttcacccaaacaattagtgaaattggaaaaagaagaagacaaaggcacc
ccaaccggttccggcccccttactgagccacggggcgacaaatctctggctctggggctgagatgtcccggtaggg
tgcacaggtagggagttcgacactggcttggtagtagtagacttactttctgaaggactggcacgacagaactgaa
gtacatcaccgagttgtgtactgagcagaaatagtacgccttcgtttcctgtctgaacttggtagggtagaaacgt
acttattattcggtccctcatggcagaaaaacagttcgacgaaattcgtttctgtccacgttatctttgtggat
aaaggccatatacacaacgaagggtggggagttttggagctggagttctggaaagggccaaagagcattcttcgtcggaaac
ggaccccaacacttcacatcaccagggtccaccccttcgtaccaagggtccgtccatctttttggaaagatctggagttcg
gtgcctgtggcttagttctccactccccaggataatcgactcaccaggcagcagcaggttccgtacccgggggggggggggg
aacggtgaggccatgtGGCTTTACCAACAGTACCGGAATGCCAAGCTGCGGGCGCTTAAGAGCTGTAATTGAACTGG

GAGTGGACACCTGTGGAGAGAAAAGGCÄAAAGTGGATGTCAGTAAGACCAATAGGTGCCATCAGAAACGCAAGAGTCTCT

CTGTCTCGACAAGCCCAGTTCTATTGGTCTCCCTAAACCTGTCTTGTAAACCTGATACTTACCTGCCAGTGCCTCAGC

ACCAACTTctgcaggaaattctggacagctccagatgatcagtaaccgtggttatttctgtgcgggcagtggagc
ctgggttagggggagctctgcctcagtgtttcagctaaaaatggggggaaacccCaggaggcccggggccctggaa
gttccctttctctgttcttggaaagtgcattgagcaacagcgggggtcagggtggcttactaccgatgcaca
ccgagtgcGgggggggttcttctcgttccacCccaggccctgccttaggtcccgacttCacttttgc
gcattgcgtggcttgggtggccatgcagaaacttgggtttccgttgcctggaaaggagagggtactggcattgcac
cctgtcttccacgaaaggcttgcagaaaggatggggccctttgtgcaggagaatgggcgcactgggtgaacttgc
gcctcgccccGcgcgttccagatgtgtgcaggccctctgtatggccgcagccctgttgcaccgcgttggag
ctggcaccctgagtgggtggccacCTTGTACTCACTCCCAGGTCACTGTCTgcacGCGGGCCGCTCGACqatAAAAATAA

AAGATTTATTTAGTCTCCAGAAAAAGGGGGGGAAATGAAAGACCCCCACCTGTAGGTTGGCAAqctaqaqCTTAAGTAACCCA

TTTGCAAGGCATGGAAAAATACATAACTGAGAATAGAGAAGTTCAGATCAAGGTCGGAACAGATGGAACAGGGCAATAAA

AGAGCCCCACAACCCCTCACTGGGGCGCCAGTCCCTCGATTGACTGAGTCGCCCCGGGTACCCGTGTATCCAATAAAACCCCT

CTTGCAGTTGCATCCGACTTGTGGCTCGCTGTTCTGGAGGGTCTCCTCTGAGTGA
CTACCCGTCAGCGGGGGG

TCTTTCAcatgcagCATGTATAAATTTGTTTTCTTAAGTATTACATTAAATGGCCATagtttcGTAAT

CATGGTCATAGCTTTCTGTGAAATTGTTATCCGCTCACAAATTCCACACAATCAGAGCCGGAAGCATAAAGTGT

AAAGCCTGGGGCGCTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCACTGCCCGCTTCCAGTCGGGAAACCT

GTCTGTGCCAGCTGCATTAATGAATCGGCCAACGCGCGGGGAGAGGCGGTTTGCCTATTGGCGCTCTTCCGCTTCCTCGC

TCAC TGA CT CG CT CG CT CG CG CT CG CG GAG CG GT AT CAG CT CACT CAA AG GCG GT AAT AC GG TT AT CC ACA

GAATCAGGGATAACG CAGGAAAGAACATGTGAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCT

GGCGTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAG

GA
CTATAAAAGATACCAGCGTTCCCCCTGGAGCTCCCTCGCGCTCCTGTTCCGACCTGCGCTTACCGGATAC

CTGTCCGCCCTTCCTCCCTTCGGGAAGCGTGGCGTTCTCATAGCTCACGCTGTAGGTATCTCAGTTGGTGTAGGTCGT

TCGCTCCAAGCTGGGCTGTGACGAACCCCCCGTTAGCCCCGACCGCTGCGCCTTATCCGTAACATATCGTCTTGAGT

CCAACCCGTAAGACACGACTATGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCAGGGTATGTAGGCGGT

GCTACAGAGTCTTGAAGTGGCTAACCTACGGCTACACTAGAAGGACAGTATTTGGTATCTGCCTCTGCTGAAGCC

AGTTACCTTCGGAAAAAGAGTTGGTAGCTTGTACCGGAAACAAACCACCGCTGGTAGCGGTGGTTTTGTTGCA

AGCAGCGAGATTACCGCGAGAAAAAAAGGATCTCAAGAAGATCCTTGATCTTTCTACGGGGTCTGACGCTCAGTGGAAC

AAAAACTCACGTTAAGGGATTGGTCACTGAGATTATCAAAAGGATCTCACCTAGATCCTTTAAATTAAAAATGAAG

TTGCGCAAATCAATCTAAAGTATATATGAGTAACTTGGCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCT

AGCGATCTGTCTATTCGTTCATCCATAGTTGCTGACTCCCCGTCGTAGATAACTACCGATAACGGGAGGGCTTACCA

CTGGCCCCAGTGTCAATGATACCGCGAGACCCACGCTCAGGGCTCCAGATTATCAGCAATAAACCCAGGCCAGCCGG

AAGGGCCGAGCGCAGAAGTGGTCCTGCAACTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAA

-TAGTTCGCCAGTTAATAGTTGCGCAACGTTGCCATTGCTACAGGCATCGTGGTGTACGCTCGTCGGTATG

FIG 13C

GCTTCATTCAAGCTCCGGTCCCCAACGATCAAGGCAGTTACATGATCCCCATGTTGTGAAAAAGCGGTTAGCTCCTT
CGGTCCCTCGATCGTTGTCAGAAGTAAGTTGGCCGCAGTGTATCACTCATGGTTATGGCAGCACTGCATAATTCTTTA
CTGPCATGCCATCCGTAAGATGCTTTCTGTGACTGGTGagtactcaaccaagtcatctgagaatagtgtatgcggcga
ccgagttgtcttgcggcgtaacacggataataccgcgcacatagcagaactttaaaagtgtcatcattggaaa
acgttcttcggggcgaaaactctcaaggatcttaccgcgtttagatccagttcgatgtaaaccactcgtgcacccaaact
gtatcttcagcatcttacttaccgcgttctgggttagcaaaaacaggaaggcaaatgccgaaaaaggaaata
aggcgacacggaaatgtgaataactcatactcttcctttcaatattattgaagcatttatcagggttattgtctcat
gacattaacctataaaaataggcgt